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ABSTRACT

As a product of the Early Childhood Subcommittee of the National Education Statistics Agenda Committee of the National Forum on Education Statistics, this report evaluates the types of data needed to assess the status of children in their preschool years, evaluate the impact of their early experiences, and address policy questions related to early childhood care, education, and school readiness. It is published as an addendum to "A Guide to Improving the National Education Data System." Issues that must be considered in studies of child development include learning and developmental stages, well-being, child care, education, and the concept of readiness. Associated data collection issues are those of definition and measurement, data needs, and possible indicators for an early childhood database. Recommendations include: (1) giving high priority to developing basic indicators; (2) developing and implementing methods to assess developmental progress; (3) developing and implementing a survey of early childhood care and education programs; (4) linking developmental assessment and the survey data; and (5) undertaking longitudinal studies to assess factors affecting child well-being. An appendix lists specific examples of possible indicators for an early childhood database. (SLD)

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A Statistical Agenda for Early Childhood Care and Education:

Addendum to early childhood

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A Statistical Agenda for Early Childhood Care and Education:

Addendum to *A Guide to Improving the National Education Data System*

Adopted by the National Forum on Education Statistics, January 1994

Prepared by the Early Childhood Subcommittee of the National Education Statistics Agenda Committee (NESAC) for the National Forum on Education Statistics under the National Center for Education Statistics, U.S. Department of Education

July 1994

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National Center for Education Statistics

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Foreword

This report is a product of the Early Childhood Subcommittee of the National Education Statistics Agenda Committee (NESAC) of the National Forum on Education Statistics. The report's purposes are to evaluate the types of data needed to:

- Assess the status of children in their preschool years;
- Evaluate the impact of their early experiences on their development and educational attainment; and
- Address policy questions related to early childhood care and education and school readiness.

This report was based on two commissioned papers, *Recommendations Regarding Data Needs and Indicators of Early Childhood Education and Readiness* by Dr. Steve Barnett of Rutgers University, and *Indicators for the Care of Young Children* by Dr. David Denton of the Southern Regional Education Board. Both papers were revised and condensed into this report by the Early Childhood Subcommittee. The Forum adopted this report in January 1994 as an addendum to *A Guide to Improving the National Education Data System.*

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Introduction

Recent efforts to improve the United States education system have generated a re-examination of the system's structure and supporting policies. One outcome of this re-examination is a greater recognition of the importance of healthy child development in the preschool years. Preschool years are now viewed as a significant period of child growth with major implications for children's educational achievement in the future.

The 1989 adoption of National Education Goals further emphasized the importance of early childhood experiences. Goal 1 states: *By the year 2000, all children in America will start school ready to learn.* The three objectives developed for Goal 1 reflect a clear recognition that a child's well-being is critical to successful learning: 1) all disadvantaged children will have access to high-quality and developmentally appropriate preschool programs that help prepare children for school; 2) every parent in America will be a child's first teacher and will devote time each day to helping his or her preschool child learn, and parents will have access to the training and support they need; and 3) children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies, and the number of low birthweight babies will be significantly reduced through enhanced prenatal systems.

The recognition of the importance of children's early physical, emotional, social, cognitive, and language development to successful learning in later years calls for revamped education policies. At the same time, those people charged with assessing the effectiveness of preschool education policies are faced with several obstacles. One obstacle is the inadequacy of existing data collection efforts at the federal and state levels for such extensive preschool assessment. Traditionally, statistics tracking a child's education in the United States did not begin until entry into the first grade, which is the first common data collection point after childbirth. Therefore, the National Center for Education Statistics (NCES) data collection efforts have focused primarily on school children starting with the first grade. A more effective information system for early care and education thus requires moving beyond the traditional school-centered approach.

Another obstacle to preschool assessment is the lack of consistent factors to use as a ruler for measuring preschool education. Because of the increased participation of mothers in the labor force since the 1960s, patterns of care and education for young children before they receive formal school instruction have diversified greatly. This diversity calls for an assessment system that can collect data on a multitude of child care and education settings.

Data collection on early care and education is complicated further because many aspects of child development that are critical to successful learning do not lend themselves readily to traditional means of measurement. Historically, standardized norm-referenced tests have played a substantial role in assessing children's education achievement in school. When applied to preschool-aged children, however, the usefulness and objectivity of such tests are viewed with great skepticism, and their application to preschool years has become a matter of considerable national debate.

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The dilemma of accurately assessing children in the preschool years even extends to the National Education Goals. Although the National Education Goals Panel has sought to identify indicators for measuring progress toward all the goals, this effort has proven most difficult for Goal 1. The *1992 National Education Goals Report* states that "As was the case last year, the Goals Panel does not yet have a direct way to measure the nation's progress toward this goal." Any coherent system for measuring progress toward Goal 1 will need to address the full range of early childhood issues embodied in the three objectives, as well as the complex interrelationships between those issues. Such a system must be capable of collecting information on many different types of programs and services in a wide range of settings, and use data provided by many different organizations and individuals. The system must also reflect an understanding of the nature of child development and learning.

During the 1980s, NCES began seeking ways to improve the national education data system's ability to provide data on the diverse range of factors that affect child development. NCES implemented a new, cross-sectional household survey, the National Household Education Survey (NHES), designed to obtain repeated measures on various topics over time. Both the initial 1991 NHES survey and the 1993 NHES survey contained early childhood components: in 1991, parents and guardians of children were asked about their children's early educational experiences, including home activities and participation in nonparental care and education; and in 1993, the survey focused on dimensions of school readiness. Both surveys also collected basic background data on the family and household.

NCES also has designed a longitudinal early childhood survey for implementation in 1997. The Early Childhood Longitudinal Study (ECLS) will track a cohort of 25,000 children from kindergarten through fifth grade. ECLS will use several information sources, including the child, the child's teacher, and parents, to assess the physical, social, emotional, language, and cognitive dimensions of child development. NCES also plans a future cohort of children beginning at birth and continuing through kindergarten.

Other federal agencies also collect information that directly relates to child development and early care and education. The Department of Health and Human Services collects extensive data on maternal and child health, as well as on federally-funded early intervention programs such as Head Start; the Department of Agriculture collects data related to nutrition programs for children and families; and numerous other agencies and programs collect assorted data that are important to completing the early childhood picture.

The involvement of so many different agencies in collecting data on early childhood provides NCES with unique opportunities to coordinate information gathering at the federal level and to cooperate with the National Goals Panel, other federal agencies, and the states to achieve consensus on what and how data on early care and education should be collected. This work would result in a comprehensive information system that would have important benefits extending well beyond the Education Goals' target year of 2000.

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Issues in Child Development

The National Association for the Education of Young Children defines "early childhood" as the years from birth to age eight. During this period, all children move through predictable stages of development, but they do so within a time frame that varies according to the individual child and the child's environment. Some of the most important factors affecting a child's developmental progress occur during this period and before birth.

The prenatal health and behavior of the mother (and, to a lesser extent, the father) play extremely important roles in determining the preparedness of the infant to progress through the stages of development. Although a child's brain at birth is already two-thirds the size of an adult's and remarkably developed, negative factors such as poor maternal nutrition or prenatal exposure to substances such as alcohol, tobacco, or cocaine can result in delayed or abnormal physical development and damage to the child's central nervous system. While such negative birth outcomes are not necessarily irreversible nor long-lived, they may delay a child's development.

Any meaningful system for assessing early care and education must include information on prenatal characteristics and birth outcomes. This information includes not only characteristics of the parents, but also of the physical and social environment in which the child is conceived and born, and responsiveness of the community to the parents' need for services such as prenatal health care, nutritional support, or substance abuse counseling. These factors are important to understanding the developmental needs of the individual child. In some cases, strategies designed to alter prenatal factors may be the most effective interventions for improving education outcomes.

Learning and the Stages of Development

While applauding the focus of the first national education goal on the preschool years, child development experts and early childhood educators have found the language of Goal 1 itself troubling. The idea that all children should enter school "ready to learn" suggests that real learning does not begin until after a child enters school. In reality, learning begins at birth and continues through all aspects of a child's life. Children learn throughout their waking hours, regardless of whether or not they are in situations where learning is the primary objective. Because views of child development and learning do differ, however, the differences can have profound influences on the design and delivery of policies and programs for children in the preschool years.

In the first year of life, development is rapid. Infants make the dramatic transition from having little control over their lives and little sense of the permanence of objects in their environments to walking and retaining mental images of objects after they are removed from their sight. The quality of the child's environment can enrich or hinder this development. Proper nutrition and appropriate health care play important roles in creating an enriching environment, but so too does the type and amount of interaction with parents through play and stimulation. Exposure to a variety of visual, auditory, and tactical stimulation can nurture or impede development. The familiar homily "play is the work of children" is literally true in a developmental sense.

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From infancy through approximately age eight, children gradually refine their skills in coordinating their internal worlds with the external world. Exploration and discovery come into play as coordination improves and they begin to master cognitive skills such as conceptualization and the use of language. During this period, children interact increasingly with other children and with adults other than their parents. The more nurturing these interactions and the more shaped by an understanding of child development and the uniqueness of the individual child, the more likely they are to promote maximum physical, emotional, social, cognitive, and language development.

Throughout this process, great care must be taken not to draw conclusions about children's developmental potential solely on the basis of how they compare to developmental norms at particular ages. Child development does not occur in a vacuum. All efforts to assess the developmental progress of children individually or collectively should be based on three fundamental concepts:

1. Development is an interactive process in which the environment and the child shape each other over time.
2. The perceptions of both the child and of others involved with the child can have substantive impacts on behavior and development.
3. Environments as well as persons change over time.

A meaningful national education data system must not overemphasize either the child or the environment, but must seek to provide a balanced picture of the characteristics of, and interactions between, the two. This means that data on children before and after entry into school are equally important, as are all aspects of children's environments, including (but not limited to) the home, the school or early care and education program, and the community.

The Importance of Children's Well-Being

The physical, emotional, social, cognitive, and language development of children are intimately and inseparably related. Children who are sick, hungry, ill-housed, or unnurtured by their primary care givers, or who have undiagnosed and untreated developmental difficulties, are unlikely to be able to take full advantage of their educational opportunities at any age.

Currently, no common point exists for information collection on children and their needs between the time when they leave the hospital as newborns and the time they enter school. Some children's physical progress is recorded by their parents or other primary caregivers, while other children are screened by their pediatricians or other health officials. However, the rest slip through the cracks. Although many children are formally screened to determine their developmental status (e.g. the Early Periodic Screening, Detection and Treatment Program of the Department of Health and Human Services), these screenings often don't occur until formal school enrollment. As a result, many preventable or correctable health problems go undetected. For example, school systems generally require child immunization before entering school; however, the

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percentage of children in the United States who are appropriately immunized against childhood diseases is lower than immunization percentages in many developing countries. The first round of inoculations must be completed by age two to realize the full benefits of immunization, but there are virtually no mechanisms for identifying children who have not been properly immunized until they enter school at age five or six. More systematic screenings at younger ages would allow for early detection of developmental problems in order to prevent or correct other problems that will manifest in later years.

Immunization is only one measure of a child's well-being. Many of the problems in the area of health and social services, and more broadly in the area of early care and education, result from the fragmented system of providing services. Different service providers may work with the same child or family without the means to either collaborate with other providers or contribute information on the child's education and learning experiences. Thus, a health care provider presented with a child who shows early signs of a learning disability may not be trained to recognize the problem or may have limited referral resources to deal with it. Similarly, educators faced with children who have obvious physical or emotional problems may not have access to specialists for collaboration or other help.

Fragmentation in the delivery of services is reflected by fragmentation of information gathering. Different types of information are collected by different agencies and organizations using different, often incomparable, methods and definitions. As a result, even though excellent data may be available on the incidence and distribution of factors such as a particular communicable disease or child poverty, it is often impossible to aggregate the data in a way that provides a complete and accurate picture of children and these issues.

Child Care and Education

Child care and education are often posed as separate and distinguishable services for young children, as though children placed in child care do not experience educational benefits and those in educational programs are not "cared for" in a custodial sense. In the real world, however, children are served in a variety of settings with various labels attached, and in each setting, care and education are intertwined. The nature of children's early development makes it impossible to distinguish programs or services that are purely child care from those that are purely educational, for every setting in which a child spends time has an effect on his or her learning and development, and in every setting some form of care is provided. This is not to say that it is impossible to judge the quality of either care or education, but rather that it is erroneous to assume that child care centers or family day care are not educational, and that nursery schools or preschools are not providing care. We use the term "care and education" here to mean that the two are inseparable in early childhood programs, regardless of the quality of the programs.

For parents who are in the labor force, the issue of early care and education programs as exclusive entities takes on special importance. More than half of all children under the age of six now have either both parents or their only custodial parent in the

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labor force. The child service needs of these parents and their children in terms of continuity over the day and week, proximity to work, cost, flexibility of schedule, and transportation are important issues that need to be addressed. Early care and education programs may be more or less responsive to such needs of working parents, but half-day programs or programs that meet only on certain days of the week may present problems for parents in meeting their work-related needs and create for the children problems of discontinuity and dislocation, resulting in what is commonly referred to as the "patchwork quilt" of early childhood experiences. To the extent that child care and education are treated as separable programmatically, the patchwork is perpetuated.

Children in early preschool years are placed in a variety of early care and education settings. Aside from elementary schools, young children learn in a wide range of different environments, including their own homes, the homes of relatives and friends, family day care homes, child care centers, preschools, and Head Start and compensatory programs. As with health and social services, the multiplicity of experiences typically encountered means that data collection is equally fragmented. Unless we are able to assess the range of experiences and the ways in which they interact, it will not be possible to fully comprehend the factors that affect children's educational outcomes. Information on the characteristics, availability, and costs of these programs and on the quality of children's experiences in such settings, as well as on ways to improve those experiences, is critically important to any information system on early care and education.

Recently, renewed attention has been given to the importance of parents as educators of their children. This is reflected in the Goal 1 objective calling for every parent in America to be a child's first teacher. Emerging efforts to assess the developmental impact of parents' interactions with their children, and to provide support to parents in areas like reading to children, are important first steps toward enhancing the home as an educational environment.

The Concept of Readiness

Readiness is a key concept in the area of early care and education. In this paper the term readiness applies to both children and schools. Goal 1's initial focus on children entering school "ready to learn" suggests to some that readiness is viewed as solely the characteristic of children, relieving schools and teachers of the responsibility to be "ready to teach." Debate over this issue has led to the distinction between children's readiness to learn and schools' and teachers' readiness to effectively teach children of diverse educational needs.

Unfortunately, efforts to measure readiness often take the form of a set of developmental criteria that are based on the perceived needs of the school and its teachers, rather than the developmental needs of individual children. As a result, children may be judged "not ready to learn" when they may actually be as ready as possible, while the school is not ready for them. Schools should not be excused from their responsibilities to individual children because the children were judged not ready by the schools' standards.

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When viewed in the context of developmental principles, readiness can be conceptualized most meaningfully as the convergence of schools that are prepared to accommodate children who are similar in age but are at different stages of development. If children experience problems in the preschool years that hinder their development, then efforts can and should be undertaken to alleviate those problems. Such efforts may eventually reduce some of the developmental differences between children entering school. Those differences will never be eliminated entirely, however, because of normal variations among individuals, and it remains the schools' responsibility to be ready for all children who are eligible by age to enroll.

Unfortunately, many schools have expectations for children that are developmentally inappropriate, even under the best of circumstances. For example, it is not unusual for children entering kindergarten to be expected to spend significant amounts of time sitting quietly at their desks working independently. Most child development specialists agree that such an academic model is inappropriate for children at this age. Forcing children to meet unrealistic expectations may delay or even regress their developmental progress. If the purpose of National Education Goals is to maximize learning at every stage of development, such expectations are inconsistent with achieving the goals.

In the context of Goal 1, readiness should be viewed in both short- and long-term perspectives. In the short term, achieving Goal 1 means taking whatever steps may be necessary to help both children and schools be as ready for each other as possible. In the long run, achieving Goal 1 means both improving children's environments in ways that will promote maximum development, and changing schools so that they become an integral part of those nurturing environments.

Any meaningful efforts to measure progress toward Goal 1 must address this dual nature of readiness. Data are needed not only on children and families, but also on the readiness of schools to effectively teach a diverse student population. Neither aspect of readiness can be measured meaningfully without an understanding of child development in all of its complexity. Ideally, achieving even this dual level of readiness should be viewed not as a goal in and of itself but rather as just one desirable outcome of more sweeping changes in the quality of early care and education.

Data Collection Issues

An essential function of a national information system on early care and education is to provide information that is useful for making policy decisions at the federal, state, and local levels. Such a system must have built into it the ability to respond to the differing demands of both short- and long-term policy concerns. It must be able to provide both a snapshot of the situation at any given time and data by which to measure trends and progress over time.

The key policy issues related to early care and education can be expressed in the form of questions that an information system should be able to answer:

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- What are the factors in early childhood that affect children's preparedness to make the most of their educational opportunities once they enter school, and how are those factors interrelated?
- What are the characteristics of the programs or environments in which preschool children are served? How do they vary by setting, sponsorship, program activities, staffing, and availability?
- What types of public policies are most effective in promoting optimal environments for the growth and development of all children?
- What are the characteristics of children and of their environments that put them at risk developmentally and educationally?
- What types of interventions are most effective in preventing and/or ameliorating the effects of the identified risk factors?
- What degrees of readiness will both children and schools be expected to achieve, and how and by whom will those levels be determined and measured?
- What types and amounts of resources are needed to implement effective early childhood programs and services and from what sources, both public and private?
- What are the most effective strategies for utilizing resources, and by what mechanisms should decisions about allocation and expenditure be made?

The National Education Statistics Agenda Committee has recommended that these broad policy questions be addressed by organizing the information needs into four general categories:

1. **Background.** Background or demographic data on the characteristics of preschool children, their families, and their communities.
2. **Resources.** Data on all types of resources that are directly or indirectly related to the development and well-being of preschool children, including both available programs and programs that children actually enter.
3. **Processes.** Information on the processes through which these resources are utilized.
4. **Outcomes.** Data on the outcomes produced by the application of these resources and processes to children, families, and programs.

As with most other aspects of early care and education, the distinctions between these categories of data are often blurred. Any individual indicator may fall into more than one category depending upon point of view and time frame. For example, disability may be both a background characteristic of the individual child and an outcome that can be prevented or ameliorated by intervening processes and resources.

The distinction between resources and processes can also be vague. For example, it seems clear that information about the availability of early care and education programs

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and services is a resource measure. Given the wide variations known to exist between programs in terms of both physical facilities and the quality of learning experiences, however, such a resource count may be meaningless unless accompanied by process information about children's actual experiences.

Three types of data programs could provide those kinds of additional data needed by policy research on early care and education. These are: 1) a national survey of early care and education programs and providers; 2) national longitudinal studies of children from birth through kindergarten and from kindergarten through primary school; and 3) research and methodological studies on special topics such as the developmental assessments.

Issues of Data Definition and Measurement

The most difficult issue of data definition and measurement is the assessment of children's development and readiness. Testing young children is controversial and many strongly oppose it because of testing misuse and its limitations when used for individual children. Among the problems are: narrow ranges of development and behavior tested, inadequacy of normative data, sensitivity of the results to examiner characteristics and environment, low reliability of children's performance, irregularity of development, lack of consideration for cultural background, and poor relationships between what is tested and readiness (Meisels, 1987; Haney, 1978). Additional problems are the stress upon children and their sense of failure, and the effects of high stakes testing on children, teachers, and schools when used for accountability purposes. Underlying all of these problems is the fundamental validity problem in testing young children to develop measures that are predictive of later outcomes.

With a clear understanding that the assessments developed for a national data system to monitor early childhood development and readiness should not be used for assessing individual children, the following guidelines are recommended. The assessments should encompass several dimensions, including cognitive, social, physical, language, and emotional aspects of development. Several sources should be considered, including the parent, the teacher or caregiver, and the child. The method of obtaining data on the child should be nonintrusive and use both observation and one-on-one assessment of performance and behavior in the home as well as in the school or program setting.

To understand the role of the school in being ready for children, data should be collected on the ways in which schools receive children at varying levels of development. This requires information on: adaptability of teachers and curricula to individual differences; expectations of teachers for level of performance and behavior; the incidence and nature of adjustment problems and how they are handled; the developmental appropriateness of the curriculum; and the transition patterns of children into kindergarten.

To describe early care and education programs requires a typology or framework for classifying the many types of programs in which children participate. The early childhood component of the Student Data Handbook (under development) is recommended

as a possible source for this system of program definitions. The system should be comprehensive of the many settings in which children participate in early care and education services (including preschools, nurseries, child care centers, Head Start programs, family day care, etc.), and their sponsorship (public school, private, federal funding, etc.). Other important elements in describing programs include program activities or curricula, staffing qualifications, and number and characteristics of children enrolled and families served. The definitions provided in the Student Data Handbook should be used to describe the characteristics of the children and families served.

Data Needs

Indicators for an early childhood database are intended to examine critical issues from a number of different perspectives, including children, their families and communities, and early care and education service providers and programs. As noted earlier in this paper, it is important to consider early childhood issues from all of these perspectives.

Four categories of indicators are presented in this section—background or demographic data, data on resources, process information, and outcome data (see Figure 1). These four categories are further defined below. It is important to keep in mind that these categories are not mutually exclusive, and are often interrelated and help explain each other. For example, a count of the number of early childhood service providers in a particular area and the number of children that they can serve would provide a quantitative early childhood provider resource measure. However, given the wide variations known to exist between providers, this information would be more meaningful if supplemented with process information on the actual experiences of the participating children.

Possible Indicators for Early Childhood Database

BACKGROUND	RESOURCES	PROCESS	OUTCOMES
Child	Social Services	Decisionmaking	Programs and Schools
Family	Health	Access to Services	Child, Family, Community
Community	Early Care and Education	Quality of Services	
	Public and Private Schools	Accountability	

Broad examples of possible indicators are included in each subset below. For more specific examples, please refer to Appendix I.

1. Background or Demographic Data

In order for this early childhood database to be useful, background information must first be collected on children, their families, and the communities in which they reside. Background data are relatively forthright to the extent that they include such obvious statistics as the numbers of young children in the population and their distribution by age, gender, and race/ethnicity. This set also includes information about the environments in which children interact, including family and community characteristics.

Child indicators. In addition to basic demographic data on young children, this subset should have information about their birth weight, gestational age, developmental history, and health and immunization status. Although most of the anticipated indicators will focus directly on children, this subset may also contain data on indicators related to their prenatal status (e.g., mothers' prenatal care, drug and alcohol use) that are closely associated with early development.

Family Indicators. This subset includes demographic information on family composition, income, housing, health, and education status, thus providing data about the homes in which young children reside.

Community Indicators. Possible indicators include the location (e.g., region, state, census tract) and setting (e.g., urban, suburban, rural); employment levels and business/industrial status; income and wealth distribution; public health status; and participation in public assistance and social service programs. Like the family indicators, this subset can provide contextual information about the environments in which young children reside.

2. **Data on Resources**

This set provides information on all types of resources that are directly or indirectly related to the development of young children. Data on resources can be collected from a variety of perspectives—the individual child, groups of children, families, early childhood service providers, and government programs—and pertain to a variety of different types of resource arrangements.

Health Resources. This subset should include such indicators as the numbers, types, and capacities of both privately- and publicly-funded health care providers to meet young children's needs.

Social Services Resources. The array of indicators in this subset should be fairly broad, including family support and preservation services (both private and public), the numbers and capacities of child protection services, and the types of, and funding for, financial support services.

Early Care and Education Resources. This subset can include both home- and center-based programs. Information should be gathered on the numbers and capacities of these services, the costs and financial assistance available, the personnel and their training, and options for young children with disabilities or other developmental problems.

Public and Private School Resources. This subset includes similar information to the previous subset. Particular attention should be given to funding and types of programs offered for pre-kindergarten and kindergarten students, transitions from early childhood programs to public and private schools, and programs or guidelines to encourage parent involvement.

3. **Process Information**

Process information focuses on indicators directly related to the provision of services to young children. In this set, the emphasis is on describing how services are delivered to these children.

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Decisionmaking. Procedures and loci of responsibility or authority for decisionmaking at the local, state, and federal levels concerning the provision of services to young children should be examined in this subset. Decisions regarding allocation of funds, services and their design, and eligibility for services are all possible indicators of importance.

Access to Service. Included in this subset are data about: the dissemination of information on available resources and services to individuals and public and private entities; eligibility guidelines that promote or restrict utilization of services; physical barriers and solutions that bring target populations together with resources and services; and legislative or regulatory options or barriers that affect access. This subset should focus on describing how young children and their families are connected to early childhood services.

Quality of Services. Quality is examined in terms of the developmental appropriateness of the services. Information should be gathered on the prevention orientation of health and family preservation services, the types of learning experiences of children in different settings, the developmental appropriateness of the early care and education curriculum/program, and level of communication between service providers and families. In addition, this subset should collect information about the qualifications and behavior of personnel providing such services, and the protection and safety of young children while they are participating in these services.

Accountability. The accountability subset focuses on gathering information about how early care and education services are regulated and evaluated. The loci of responsibility, mechanisms, and procedures for monitoring and evaluating the adherence of early childhood service providers to minimum standards and outcomes should be included in this subset.

4. **Outcomes**

The last set of indicators gathers information on outcomes for young children, their families, and communities, as well as for programs and schools that provide services to these children.

Child, Family, and Community. This subset focuses on the outcomes for individuals or groups of individuals. It should include both child and family well-being indicators, as well as community indicators. Of paramount interest are data on the developmental readiness of children; such data are not currently available because the instruments have not been developed. Nevertheless, information on the developmental status of young children is needed if policymakers are to make informed decisions about improving the development of young children.

Programs and Schools. Included in this subset should be information on the developmental appropriateness of different types of programs; the placement, success, and retention rates of different types of programs; and the mechanisms in place for easing transitions from home, preschool, or child care to formal schooling.

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Recommendations

1. **NCES should give high priority to identifying a basic set of indicators for early childhood care and education and should concentrate its efforts on providing leadership and coordination for collecting accurate, comparable information on these indicators.**

    1-A. Decisions on including indicators in the basic data set should be based on the: 1) numbers of children affected; 2) magnitude of impact on developmental potential; 3) feasibility of achieving meaningful change given existing knowledge; 4) feasibility of collecting needed information; 5) relevance to Goal 1 objectives.

    1-B. Where information relevant to selected indicators currently is collected by other federal agencies or states, NCES should assume a leadership role in bringing those agencies together to resolve methodological inconsistencies that reduce the comparability of data and to ensure that the information needs are given appropriate consideration in decisions about how data are collected, analyzed, and made available.

2. **NCES should develop and implement methods of assessing children's developmental progress from birth through primary school.**

    2-A. An advisory panel of recognized experts in child development, including representation of all important theoretical viewpoints, should be convened to develop a set of developmentally appropriate assessment tools or methodologies to measure the developmental levels of young children.

    2-B. Using these assessment tools, data should be collected on comparable and representative samples of young children at regular intervals. The sample should include subgroups of the population as identified by geographic location, race/ethnicity, family characteristics, use of selected resources and services, and other specified variables that could help inform policy decisions.

    2-C. These assessments' primary purpose should be monitoring education trends and informing policy decisions.

3. **NCES should develop and implement a survey of early childhood care and education programs to describe their variety and quality and their effectiveness in promoting child development. This survey should include programs that serve children from birth through kindergarten and primary grades.**

    3-A. NCES should develop a universe of early childhood care and education programs that is comprehensive of the full range of out-of-home settings in which children receive services. This universe will serve as the sampling frame for this survey.

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3-B. All programs, including elementary schools (i.e., kindergarten through primary grades) should be assessed according to the appropriateness of their curricula to the developmental needs of children.

3-C. Key indicators should include curriculum design, instructional delivery, teacher/student ratios, and teacher qualifications to assess the developmental appropriateness of these programs.

4. **NCES should develop methods to link the developmental assessments of young children to the survey data about programs to assess the readiness of schools for all children.**

5. **NCES should undertake longitudinal studies of children from birth through primary grades to determine the effect of different early childhood conditions and experiences, including care and education programs, on the developmental well-being and education attainment of children.**

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Appendix
Specific Examples of Possible Indicators for an Early Childhood Database

Background

- Child poverty rate
- Rates of low and very low birthweights
- Infant mortality rates
- Birthrate to teenage mothers
- Birthrate by parent education (e.g., percent born to non-high school graduates)
- Percent of children born to single parents

Process

- Multiple-setting indicator (e.g., number of different settings children occupy weekly)
- Program features and processes
- Staff/child ratios
- Staff qualifications (e.g., percent with training in early education)
- Curriculum characteristics
- Kindergarten to grade 1 transition assistance
- Parent support and education

Resources

- Federal and state expenditures per child for health, education, and family support
- Immunization rates at infancy and at entry to school
- Number of early care and education programs by type, setting, and sponsorship
- Number and percent of all children enrolled in the above programs
- Staffing of early care and education programs
- Percent of mothers receiving prenatal care by trimester
- Percent of children lacking health insurance
- Percent of eligible children in Head Start
- Percent of children eligible in IDEA programs
- Percent of eligible children receiving Early Periodic Screening, Detection, and Treatment

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Outcomes

- Developmental status measures of children, pre-kindergarten through primary (cognitive, social, physical, and language)
- Developmental status of programs serving early childhood through primary (indicators of developmental appropriateness of programs)
- Indicators of parental involvement in promoting children's development (e.g., amount of time parents spend reading to children)
- Indicators of successful transition into kindergarten and primary school
- Retention rates in pre-kindergarten, kindergarten, and primary school

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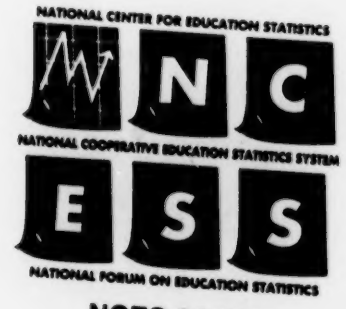
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